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ABSTRACT

Precision teaching is a way of maintaining accountability in a classroom, through letting children work on individually prescribed objectives without losing track of each child's needs and rate of progress. This goal is accomplished through taking a timed test of each student's performance daily, and recording the scores on logarithmic charts. The materials in this publication were developed for an inservice teachers' workshop designed to provide skill training in precision teaching. The main section provides step-by-step instructions for charting children's progress in reading on a logarithmic "Daily Behavior Chart." The following section shows how to use information gathered on the charts in making instructional decisions for each student. The publication also includes a rationale for precision teaching, a brief history of the techniques used, a five-item bibliography, a list of resource people, and an illustrated glossary of terms. (GW)

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International Reading Conference 1977

Precision Teaching in the Elementary Classroom

ESEA-Title IV-C
Santa Fe School
Oakland, California

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PREFACE

The materials included in this packet were developed by the authors for use in our May 4, 1977, Microworkshop presentation for the International Reading Association's Annual convention in Miami Beach, Florida. The title of the microworkshop was "Precision Teaching for the Elementary Classroom". The major objective of the presentation was to provide those in attendence with enough skill training and knowledge in Precision Teaching to be able to return home and develop their own precision teaching projects.

Essential to employing the precision teaching concept is the use of the six cycle "Daily Behavior Chart". A programmed workbook was written so that participants in the workshop might independently develop skill in using the Daily Behavior Chart. Fluency in use of the Daily Behavior Chart is an essential skill for making precision teaching work in a school setting. A person might acquire this skill by use of the workbook already mentioned or study of some of the excellent references listed in the packet.

We feel that the materials included in this packet will be of interest to the following audiences.

1. Classroom teachers and special education teachers: It is our hope that when teachers study these materials they will see the value of time-testing students and charting their daily progress. And again it is our hope, that Teachers who see the value of these procedures will bring them to their own classroom.

2. Administrators and resource personnel: The Daily Behavior Chart should be viewed by these people as an economical means of recording academic behaviors of students, and as a value-neutral tool for facilitating communication with the classroom teacher.

3. Researchers: The Daily Behavior chart should be called to the attention of educational researchers as it is inexpensive, standardized, shows growth proportionately, and displays longitudinal data in a concise manner. In precision teaching the focus is on the pupil's academic output in the context of a minute time frame or some multiple of that one minute reference. Many recent research studies have similarly dealt with models of pupil academic productivity. The daily behavior chart would seem to be suited for measuring this kind of model.

The precision teaching materials in this packet were intended to be used in harmony with our microworkshop presentation. Realizing that these materials do not answer many of the questions that might be dealt with in a workshop setting, it is our hope that these materials will on their own provide the reader with the essentials for developing precision teaching projects of their own.

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PRECISION TEACHING--WHAT'S IT ALL ABOUT?

Patricia Manz

Precision teaching is a way of maintaining accountability in a classroom. It is a way of letting each child work on individually prescribed objectives without losing track of where students are and where they are going. This is done by taking a timed test of each student's objective daily, and recording their scores on logarithmic charts. A precision teacher can then make daily decisions about student progress--who is ready to move on to harder objectives, who needs extra help, who should be sliced to an easier objective--rather than waiting for a weekly test or unit test. Taking a timed test every day gives a student as well as the teacher immediate feedback on the progress being made. It programs a student for success, since immediate changes can be made, rather than allowing a student to become frustrated by remaining on an objective that is too hard or too easy.

It is important to remember that precision teaching is not another teaching method or technique. We are all individuals, and we teach (and learn!) in different ways. Being a precision teacher helps us evaluate what methods and materials work with which children.

One of the most important benefits of precision teaching is the way it involves students in their own learning process. They are not simply working on materials because they were told to, but because they know what objective they have to master. Charting their own data keeps students motivated and excited about their own learning. Each student can feel good about his/her own success, without being compared to another student.

A BRIEF HISTORY

Patricia Manz

Precision teaching began over ten years ago at the University of Kansas. Ogden Lindsley, the "father of precision teaching," developed the techniques along with a staff of special education teachers who were looking for a better way of communicating about student progress. After developing and discarding many different types of charts, they came up with the six cycle Standard Daily Behavior Chart. Since then precision teaching has spread across the country.

Precision teaching at Santa Fe Elementary began as a grass roots movement. Several teachers had taken college courses stressing precision teaching techniques. These teachers began implementing and sharing those techniques with other teachers. As the ideas spread, ten teachers worked together one summer to write a proposal for federal funding (Title III, ESEA), to help implement a precision teaching program within the school. In July 1974 the funding was granted and the project began. During the first year the teachers and their instructional assistants were trained in precision teaching techniques: learning how to chart, the mechanics of timed testing, and precision decision making.

The project is now in its third year. We still have 10 classrooms in which students are charted daily in both reading and math. We have developed a great deal of sequenced material in math, reading, and language. Our students are excited about being involved in their own learning. Our second year achievement test scores showed 40% greater gains in math and 25% greater gains in reading than previous years. We expect even greater gains this year.

Successive Calendar Days Graph form removed due to poor reproducibility.

Name _____

_____

Date

Aim	Aim	Aim	Aim	Aim

Locating Information Quickly

Penguins

(7) 1. Penguins live in the south polar regions
(15 where the weather is extremely cold. Wild
(22) penguins are not found anywhere in the
(31) northern half of the earth. Most of them
(40) live in groups, called colonies, far south
(48) along the coast of the Antarctic Ocean.
(55) 2. Penguins have wings, but they cannot
(64) fly. Their wings are not large enough nor
(73) correctly formed for flight. A pair of such
(81) wings cannot support a body as thick and
(89) heavy as a penguin's in the air.
(95) 3. Penguins have interesting habits. On
(105) land, they often walk about in single file.
(111) They waddle somewhat clumsily because of
(120) their short legs. They can run but not
(129) fast. They usually walk erect, but some-
(135) times they throw themselves forward on
(143) their stomachs and slide over the ice and
(150) snow, pushing themselves by kicking their
(160) legs. Some have been seen to lean far for-
(169) ward and use their wings in walking. An-
(177) other queer habit is making bows to one
(182) another as a greeting.

4. It is in water that penguins travel (189)
best. They are excellent swimmers and can (197)
move about on the surface and under water (205)
as swiftly and gracefully as fish. They (213)
swim in a most unusual way for birds. (221)
They use their stubby wings as paddles, (228)
moving first one and then the other. They (237)
have webbed feet which they stretch out (244)
straight behind as they swim. (250)
5. There are many different kinds of (256)
penguins. They range in size from the big (265)
emperor penguin which is about four feet (272)
high to the little blue penguin which is only (281)
about sixteen inches tall. Most of the (289)
penguins that are in zoos are emperors or (297)
king penguins. The king penguin is next (305)
to the emperor in size. (311)
6. Each mother penguin, except those (317)
that are emperors, lays two eggs at a setting. (327)
The emperor penguin lays only one. The (335)
eggs are white or greenish white and are (343)
laid in a rough nest among the rocks or in (353)
a hollow place right on the ground. (361)

1. ____ ____ Are pengiuns tropical birds.
2. ____ ____ Do they have webbed feet?
3. ____ ____ Do they swim under water?
4. ____ ____ Is the king penguin the largest of all penguins?
5. ____ ____ Are there wild ones living near the North Pole?
6. ____ ____ Do they have any interesting habits?
7. ____ ____ Can they fly?
8. ____ ____ Do they swim well?
9. ____ ____ Do they nest on the ground?
10. ____ ____ Do they hatch many eggs at a setting?
11. ____ ____ Do they always remain erect when traveling on land?
12. ____ ____ Can they travel very swiftly on land?

Answers: 1. 1,No 2. 4,Yes 3. 4,Yes 4. 5,No 5. 1,No 6. 3,Yes
7. 2,No 8. 4,Yes 9. 6,Yes 10. 6,No 11. 3,No 12. 4,Yes

LEARNING HOW TO CHART

A PROGRAMMED WORKBOOK

Jim Mordecai
Pat Manz

Basic to Precision Teaching is the use of the Standard Daily Behavior Chart. This is a six-cycle logarithmic chart which gives us a visual portrayal of successive changes in children's performance.

We use a logarithmic chart for two reasons:

1) It shows growth the way it actually happens--proportionately.

2) We can record any behavior--ones with very low frequencies that may only happen once a day, or high frequencies that happen 1,000 times a minute.

Chart orientation: Look at the blank line in the far right hand corner of your chart. This blank line is for entering the title or subject of what is being observed. The third line to your left, titled "BEHAVER" is for entering the name of the person being observed. Now find the blank line to your left titled "MANAGER." Enter here the name of the person who is doing the observing. To your right and up are the words, "SUCCESSIVE CALENDAR DAYS." Just above are vertical lines numbered from zero to 140. Each of these 140 lines represent one Calendar day, with every seventh line (the heavier, darker lines) representing Sundays. Along the top of the chart, running horizontally, every fourth Sunday is marked with the numerals, 4, 8, 12, 16, and 20. Above each of these numerals is a place for the day, month and year to be entered. Along the left ordinate or vertical axis of the chart can be read the caption "COUNT PER MINUTE" (turn your chart sideways to read). The count ranges from the smallest unit, .001, at the bottom to 1000 counts per minute at the top of the chart. All data is graphed on these horizontal lines to show the relationship of graphed data to one minute.

Find the horizontal line marked 1 in the middle of the chart. Lines drawn below the 1 horizontal line show divisions of 1 and lines above the 1 line indicate multiples of one. Below the 1 line there are six horizontal lines that have been marked with numbers in the left margin. The larger, thicker numerals and horizontal lines are primary lines. The other numbered lines, which are not as heavy or thick are secondary lines. Starting at the bottom the primary lines are marked .001, .01 and .1. The secondary lines are one-half of each marked primary line. They are .005, .05 and .5.

Above the 1 count line there are six horizontal count lines that are marked with numerals. And as below, these numbered count lines are grouped into primary and secondary lines. The primary count lines indicate multiples of 10. Thus the scale is 10, 100 and 1000. And the secondary lines are one-half of each one of these 5, 50, and 500. The unmarked lines indicate counts in between the primary and secondary lines. For example, in between the numbered count lines 1 and 5 are four blank lines, the first 2, 3 and so forth.

There are numbers for which no horizontal line is drawn, and an estimate must be made. For example, we would plot 15 mid-way between the 10 count per minute and 20 count per minute lines. 38 would be very close to 40, etc. Zero is always located immediately below the record floor (see the following section).

On the right side of the chart is the caption "COUNTING PERIOD FLOORS" (turn your chart sideways to read).

The "COUNTING PERIOD FLOOR" (or "RECORD FLOOR") is the lowest number of times a behavior can happen in a given amount of time. It is written mathematically as $\frac{1}{\text{amount of time}}$. (You'll notice 0 is not used, since that would mean the behavior had not occurred.)

The counting period floor being used is indicated by drawing over the horizontal line time period you want to select. When a counting floor lower than one minute is used, then it is advisable to use a "rate finder." For our purpose we will stick to a one minute counting floor.

Plotting test data: Test data is plotted on the daily behavior chart by graphing the number of correct responses and incorrect responses on the calendar line for the day of the test. To indicate the number correct, a pencilled "." (dot) is graphed on the intersection of the vertical calendar day line and the horizontal intersection of the vertical calendar day line and the horizontal count per minute line. To show the number of problems the student missed a pencilled "x" is graphed at the point of intersection for the day and the count per minute lines.

Charting Conventions: Two or more consecutive days of data are connected by a straight line. Correct responses or dots on the chart, are connected to correct responses. Incorrect responses or "x" points on the chart, are connected to each other. However, when a calendar day line has no graphed data, referred to as a "no chance," then data points are not connected. For example, if school is out on Friday and does not begin again until Monday, then Saturday and Sunday are classified as "no chance days" and the data for the previous Friday and Monday

must not be connected. A "no chance" day also occurs when a student is absent.

No Count Days. At other times there may have been an opportunity for the behavior to occur, but it was not counted and recorded. For instance, there may have been a field trip, school assembly, or teacher substitute. On these "no count" or "ignored" days no dot or x is placed on that day line, but previous data is connected to subsequent data through that day line.

Goals and Curriculum Changes: Each student has a goal to achieve. The goal is a prescribed minimum rate and accuracy level that the student must reach to demonstrate mastery of a target objective. Some teachers individualize students' goals and others use standardized minimum goals. For example, in testing oral reading in context a minimum standardized goal might be all students, at their own reading level, read 120 words per minute with a maximum of two errors allowed.

When a student reaches a goal objective, then a change in the student's curriculum must take place. This is sometimes referred to as "performance determined instruction." To show curriculum changes on the chart a pencilled line is drawn from the top of the chart down through the counting period floor. The line is drawn between the day line of the day the pupil reached his or her goal and the next day line. This line is called a "curriculum change line." At the top of the curriculum change line the exact title of the student's new curriculum objective is written. All data to the right of this line applies to the curriculum objective listed at the top.

Goal target ranges are indicated on the chart in various ways. Sometimes a star or other mark is placed on a count per minute line. Other times, the count per minute line is marked with a colored marker.

Reading a chart: Charts are read by Precision Teachers in terms of a student accelerating and decelerating toward prescribed goals. Ideally a student accelerates his correct responses and decelerates his incorrect responses until his rate and accuracy goals are reached. The chart of a student who is properly placed and progressing properly should show lots of mountain peaks. The front of the mountain is gradually sloping upward to the top and dropping off sharply when a new curriculum objective is given.

Why use the Daily Behavior Chart: The Daily Behavior Chart has many advantages over other charts and systems for recording data on students' behavior. The logarithmic chart system is superior to plain equal proportioned charts and graphs in that the Daily Behavior Chart eliminates distortion normally found when graphing using a chart with equally spaced lines. As the Mercator projection was a better way to represent a scaled map of the world, the logarithmic chart scale is a better way to represent behavior data that shows student growth in graphic form. The

Daily Behavior Chart is very practical and easy to handle and store; two charts per student will cover a full school year. The chart is very inexpensive. Because the chart is standardized with a standard set of rules and conventions for using it, it is a wonderful means of communicating with and about a student's growth.

CHARTING

The actual plotting of data takes some practice and skill. Try the following pages to sharpen your skill at locating data "intersection points." The last page is a post-test for you to use and evaluate skill at charting data. Your goal is to see if you can plot three (3) weeks of oral reading data, make curriculum changes when appropriate and complete this test within ten minutes with no more than two errors.

Warm-up drills. Plot on the 0 Sunday line (first line running vertically on the left) the following "Count per Minute" intersection points:

1	20	49	200
3	25	60	150
5	30	70	299
9	38	80	400
15	43	100	

Plot these intersection points on the Wednesday following the 0 Sunday line:

0	29	70	500
2	35	80	
6	40	95	
10	48	125	
15	55	250	

Plot these points on the Friday line following the 0 Sunday line:

1	12
2	18
7	65
9	99

Before going on pay attention to the following:

1. One minute counting period floor is used and tracing over the one minute line is to be done before further charting.
2. Correct data is indicated with a dot or pencil point.
3. Incorrect data is indicated by an X.
4. Consecutive correct data points are connected by a line between data points to show acceleration of deceleration.
5. Consecutive incorrect data points are connected by a line between data points to show acceleration or deceleration.

6. A line drawn between the day lines and labeled as to the type of curriculum being observed is called a "curriculum change line."

7. A new curriculum change line is drawn each time a student reaches and/or passes his or her curriculum goal.

Mary Jane, a student using a 2nd grade basal reader, has been tested on a word list appropriate to the story she is studying. This student's goal is to read 60 words a minute with 2 errors or less.

Your assignment: Plot the following data on your chart beginning with the 4th Sunday line. Make a curriculum change to list #2 when and if appropriate.

Mary's scores:

Date	Day	Right	Wrong
4/10/76	Monday	18	5
5/10/76	Tuesday	16	6
6/10/76	Wednesday	21	2
7/10/76	Thursday	32	4
8/10/76	Friday	74	1

Robert Ready is using a 2nd grade basal reader and working on Unit #5 of his word list. His goal is to read 60 to 108 words from his list in a minute with a limit of 2 errors.

Your assignment: Plot this data beginning with the 5th Sunday line. Make a curriculum change from Unit #5 to Unit #6 if and when necessary.

Robert's score:

Date	Day	Right	Wrong
11/10/76	Monday	42	0
12/10/76	Tuesday	123	3
13/10/76	Wednesday	65	0
14/10/76	Thursday	14	9
15/10/76	Friday	32	7

Helen Goodreader is using a 6th grade reader for her time test in the area of silent reading. Her goal is to read silently in context 350 to 900 words per minute with 2 errors or less.

Your assignment: Plot this data beginning with the 7th Sunday line.

Helen's Score

Date	Day	Right	Wrong
25/10/76	Monday	152	2
26/10/76	Tuesday	190	1
27/10/76	Wednesday	- Absent	-
28/10/76	Thursday	300	1
29/10/76	Friday	324	0

David Ditto is reading from his 5th Grade basal reader. His goal is to read orally at a rate of 120 to 250 words per minute with 2 errors or less. He starts the week on Unit #2.

Your assignment: Plot this data beginning with the 9th Sunday line. Make curriculum changes when appropriate.

David's score:

Date	Day	Right	Wrong
15/11/76	Monday	92	4
16/11/76	Tuesday	102	2
17/11/76	Wednesday	107	1
18/11/76	Thursday	118	1
19/11/76	Friday	137	3
22/11/76	Monday	149	3
23/11/76	Tuesday	- Absent	-
24/11/76	Wednesday	141	0
25/11/76	Thursday	65	4
26/11/76	Friday	83	2

ANSWER KEY

Place the answer sheet key over your own chart to check your answers.

Mary Jane. Mary Jane reached her goal Friday and would be ready to move to list 2 on Monday.

Robert Ready. Robert did not reach his goal Tuesday because his errors were too high. However, on Wednesday he did reach his goal and should begin Unit 6 on Thursday.

Helen Goodreader. Helen never reached her goal this week. Notice that her absence is obvious on the chart.

David Ditto. David did not reach his goal on Friday or Monday because his errors were too high. He did reach his goal on Wednesday and is ready for Unit 4 on Thursday.

POST TEST

Your goal is to plot three (3) weeks of oral reading data, make all curriculum changes when appropriate and complete this post test within ten minutes with no more than two errors. Plot the data beginning with the 12th Sunday line. 120 is the goal.

Oral reading test scores of Frenchy Final.

Date	Day	Right	Wrong
5/12/76	Monday	130	4
6/12/76	Tuesday	50	3
7/12/76	Wednesday	200	2
8/12/76	Thursday	-----absent-----	
9/12/76	Friday	110	6
12/12/76	Monday	90	4
13/12.76	Tuesday	99	4
14/12/76	Wednesday	126	1
15/12/76	Thursday	100	5
16/12/76	Friday	120	4
19/12/76	Monday	130	0
20/12/76	Tuesday	101	1
21/12/76	Wednesday	140	0
22/12/76	Thursday	85	3
23/12/76	Friday	-----Holiday-----	

DECISION MAKING

or

WHAT DO ALL THOSE DOTS AND Xs MEAN?

By Merle Nadlin

The information we gather on the chart lets us know when we can make timely decisionsin each student's program.

MASTERY LEVELS

1. A mastery level should indicate a point at which no further instruction in a skill is necessary.

2. A mastery level should indicate a point at which the student can maintain a skill over time.

3. A mastery level should indicate a point at which the student can progress on to the next highest skill on the hierarchy with a high probability of success.

------ Note the enclosed material from curriculums unlimited which lists the range of mastery levels for different skills ------

Entry levels = Rate of 2/3 of mastery with at least 80% accuracy

---

MINIMUM CELERATION SLOPE

A line which provides the basis for timely program change decisions.

If a student's performance does not exceed the minimum celeration for three consecutive days, it is time to make a program change.

Calculating the minimum celeration slope

If a child's rate of reading short A words (cat, rat) is 40/min and our aim is for the child to read 60/min, we calculate the minimum celeration slope in the following way:

$$
\begin{array}{r}
1.5 = \text{minimum celeration} \\
40 \overline{)\,60.0} \\
40 \\
\hline
200 \\
200 \\
\hline
\end{array}
$$

PROBLEM: Ann says her letter sounds at a rate of 50/min. We want to increase her rate to 90/min. What is the minimum celeration which will be acceptable for Ann's program?

RULES OF THUMB

1. STEP BACK to a more elementary skill, prerequisite to the skill presently being tested if the error rate is higher than the correct rate and is accelerating or remaining flat while the correct rate is remaining flat or decelerating.

2. SLICE BACK and select only a subset of items to work with if the error rate is higher than the correct rate and they are both accelerating or if the correct rate is a little higher than the error rate, but is flat or decelerating while the error rate is accelerating.

3. INSTRUCTION in a skill is indicated if the correct rate is higher than the error rate and is accelerating, regardless of how the error rate might be changing.

4. Implement an ACQUISITION PROGRAM if the child's error rate has not yet met the aim which you have set for the skill.

5. Implement a FLUENCY BUILDING PROGRAM if the child's correct movement cycle count is equal to or greater than 20 and the error movement cycle count is equal to or less than 10.

REFERENCES:

Alper, T. Delivery Systems for Academic Change. Unpublished paper.

White, O., and Haring, N. Exceptional Teaching. Colombus, Ohio: Charles E. Merril, 1976.

Reading Proficiency Guide, Unique Curriculum Unlimited, copyright 1975 removed due to copyright restrictions.

Thoughts on Curriculum

By Evelyn Eagans

One of the problems of the last several decades is reading. The way that Santa Fe School has raised the level of reading effeciency in children is "Precision Teaching for Effective Learning."

The curriculum consists of many materials sequenced according to levels of difficulty. This system is a model of an effective, accountable program which emphasizes instruction based on each child's daily performance.

The kindergarten curriculum begins with colors and shapes. They do all their beginning work using auditory skills. The children match and say their letters. Then they move to rhyming words. They name pictures using initial sounds.

In the primary grades we work on letter-sound knowledge, sound-symbol relationship and blending in reading serve as building blocks in learning to read.

The program consist of materials on consonant and vowel sounds and words with graphonemes.

The book that we use are Sullivan. We use phrases, sentences, comprehension and word meaning from that book.

Other materials we use are words, phrases, and sentences from Harper Row, Houghton Mifflin, Dolch and Wilson Essential Vocabulary.

In the upper grades children are placed in Houghton Mifflin basal readers. Teachers take timed tests from those readers. For additional help they also use sequenced materials on vowels, blends, digraphs, etc.

The teachers said their children are learning faster and better than before. One teacher said, "This program have made more significance than any program that she has used. She has taught kindergarten for 14 years. The children enjoys taking time tests and charting themselves.

Before I started in this program, I did not like the idea of a one minute time test. I was wondering what could you tell in one minute. I am now a great believer and a speaker for this program.

BIBLIOGRAPHY

1. Jordan, June B. (editor) et al. Let's Try Doing Something Else Kind of Thing, The Council for Exceptional Teaching, Arlington, Virginia, 1972.

2. Kunzelmann, Harold P., et al. Precision Teaching. Special Child Publications, Inc., 4535 Union Bay Place, N. E., Seattle, Washington 98105, 1976.

3. Lawrence, Teresa M. (editor). Teaching Exceptional Children. Spring, 1971.

4. Pennypacker, H. S.,et al. Handbook of the Standard Behavior Chart, Precision Media, Box 3222, Kansas City, Kansas 66103, 1972.

5. White, Owen R. and Norris G. Harring, Exceptional Teaching, Charles E. Merril Publishing Co., Columbus, Ohio 43216, 1976.

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ILLUSTRATED GLOSSARY

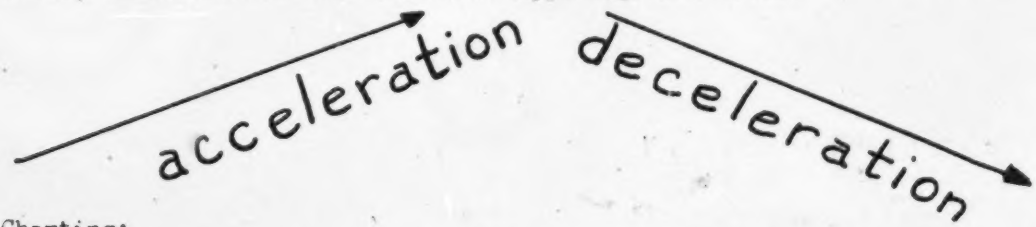
Calibration:

In order to assess progress accurately, the behavior of a child must be calibrated in terms of uniform movement cycles. The process of calibration should insure that:

1. Each instance of the movement cycle represents essentially the same amount of physical behavior.
2. The movement cycle is directly and meaningfully related to the over-all instructional objective.
3. The movement cycle may be reliable and easily measured each time it occurs.

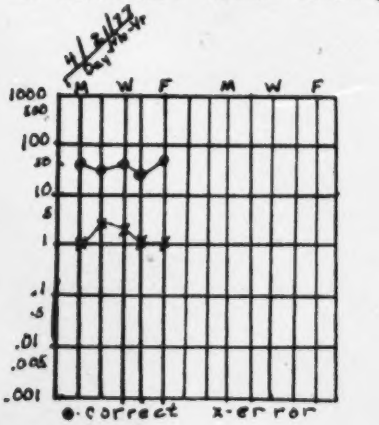
Celeration:

Any change in behavior: Acceleration - the behavior happening more often; Deceleration - the behavior happening less often.

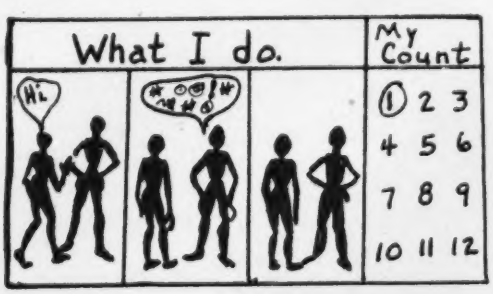


Charting:

Any behavior, either academic (performance on arithmetic time-test) or affective (name calling) can be counted and recorded on the chart.



academic

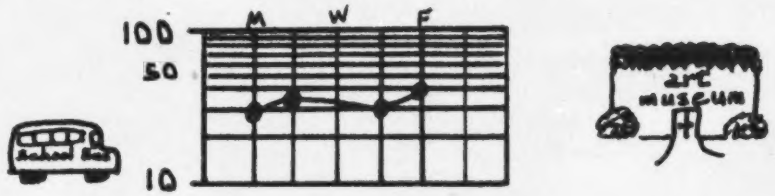


affective

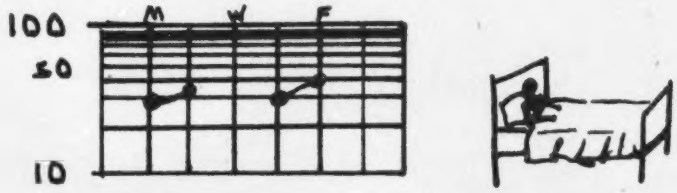
Charting Terms:

Desired rate: The goal or desired rate for a particular behavior.

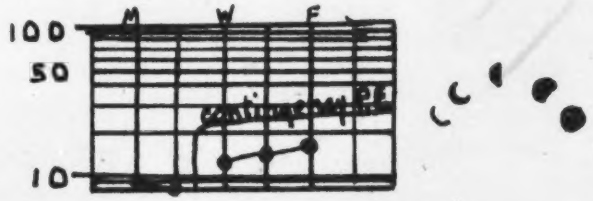
Ignored day: A day in which the movement could have occured, but was not recorded.



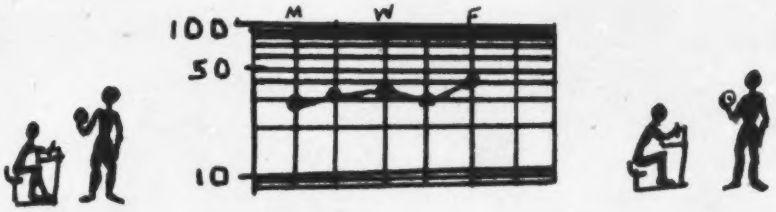
No chance day: A day in which the movement has no opportunity to occur.



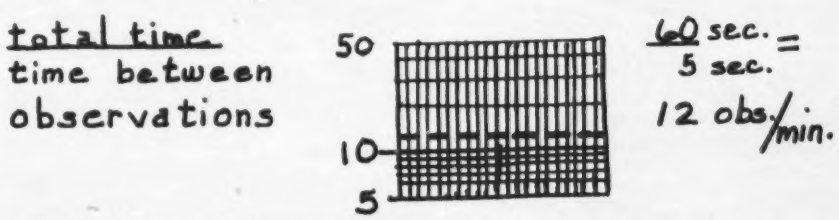
Phase change: A line on the chart (inserted by the charter) which indicates a change in teaching, motivation or environment.



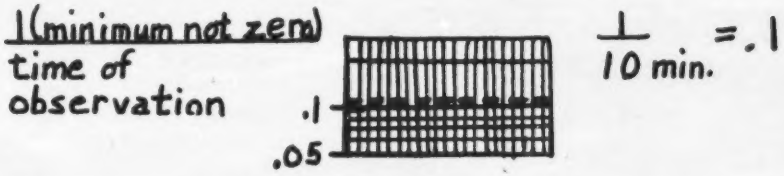
Rated day: A day in which the movement could have occured and was recorded.



Record ceiling: The highest measurable performance rate determined by the program or programed events.

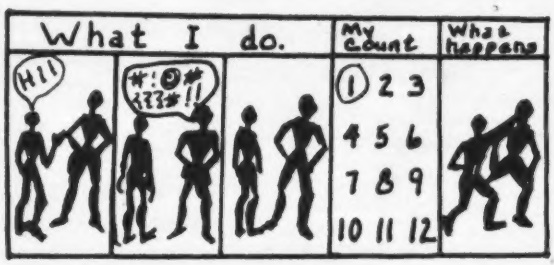


Record floor: The lowest measurable performance rate other than zero.



Consequences:

An event after a movement cycle which affects the chances that the movement cycle can occur.



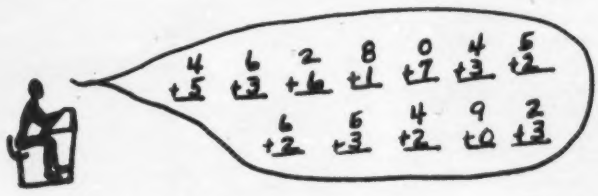
Entry Level:

Two thirds of mastery.

$1+1=2$ mastery $\quad \perp \top \perp = \angle$ entry

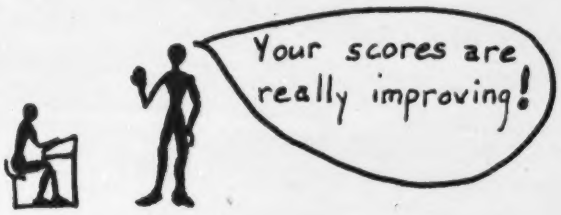
Inventory:

Skill area that is being assessed. (Addition 1-9)



Intangible Reinforcement:

Something that effects how a child feels.



Instructional Intervention:

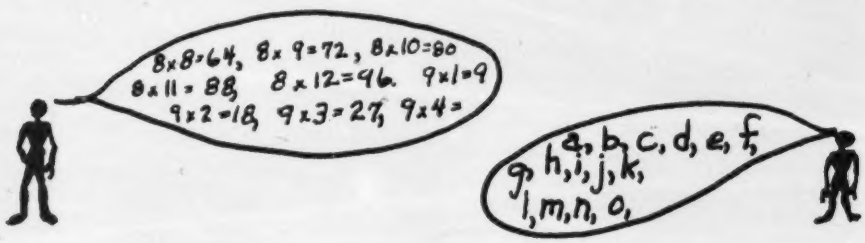
Any change in teaching style or curriculum.

Logarithmic Chart:

A graphic representation which shows the frequency of any behavior on a certain day or over a period of time and represents proportional growth. (see appendix A)

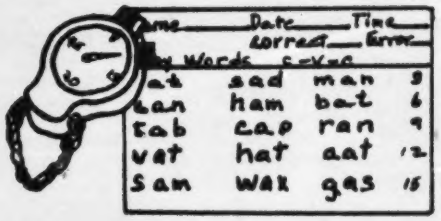
Mastery Level:

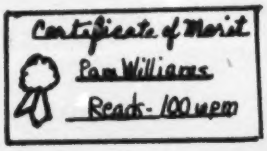
The level at which a students performance is considered to be proficient.



Precision Teaching:

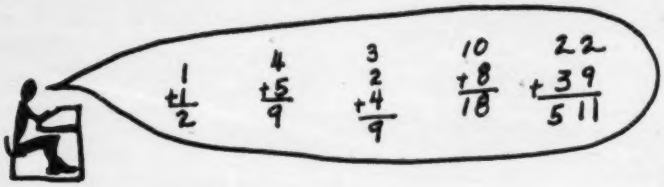
A system which allows a teacher to have a continuous measurement of a childs performance and to see the effect of teaching strategies on that performance. It allows for diagnosis, individualization of curriculum and instruction, and gives teachers immediate feedback as to the effectiveness of their interventions.





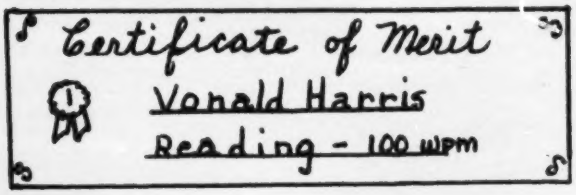
Probes:

Initial assessments which place the child in the program.



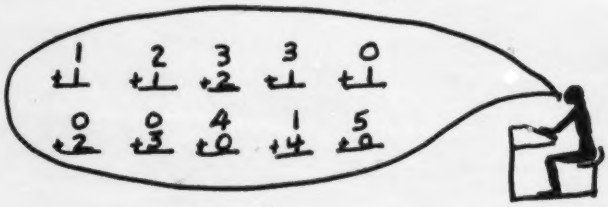
Reinforcement:

To strengthen by additional assistance. Tangible Reinforcement and Concrete Reinforcement: Something a child can see, feel, touch or taste.



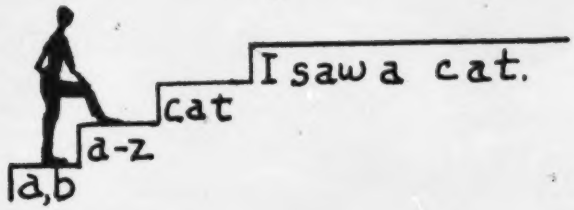
Screening:

Sub-set of the skill. (Addition 1-5)



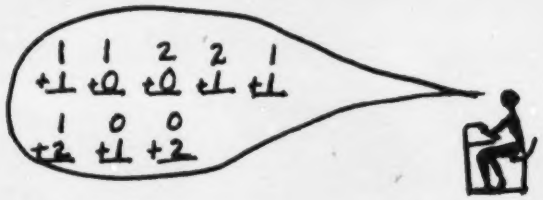
Sequenced Curriculum:

A sequence of work reflecting a hierarchy of increasingly difficult skills and overlapping of ideas as one progresses from one phase to the next.



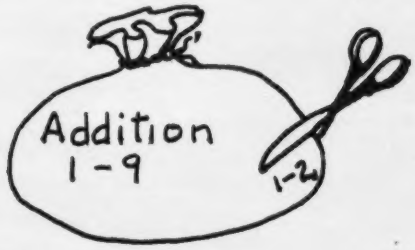
Slice:

Sub-set of the screening. (Addition 1-2,1-3,1-4)



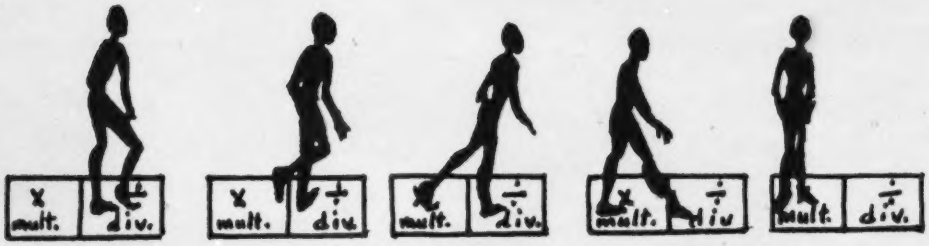
Slicing:

Within a skill area to move back to a sub-set of items. (Addition 1-2,1-3,1-4)



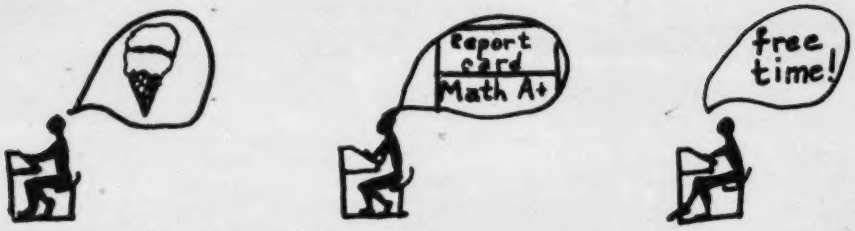
Step back:

To move back to a more elementary prerequisite skill.



Motivation:

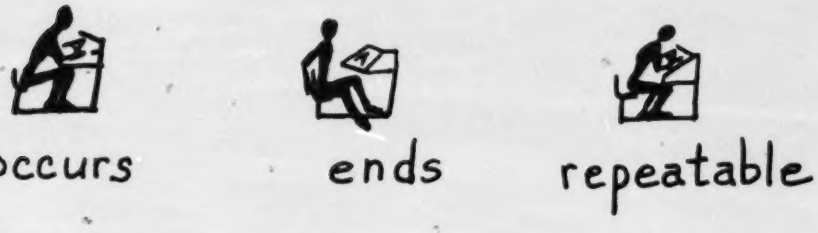
Something that causes a person to act.



Movement Cycle:

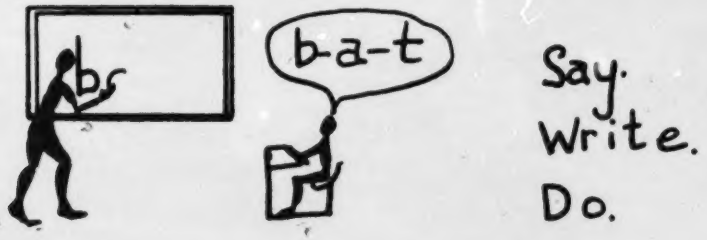
Precise target for precise instruction. A behavior which has the following characteristics:

1. It involves directly observable movement.
2. It has a precisely defined and easily identified beginning and end.
3. It is repeatable, having a definite cycle. (example: reads words orally correctly.)

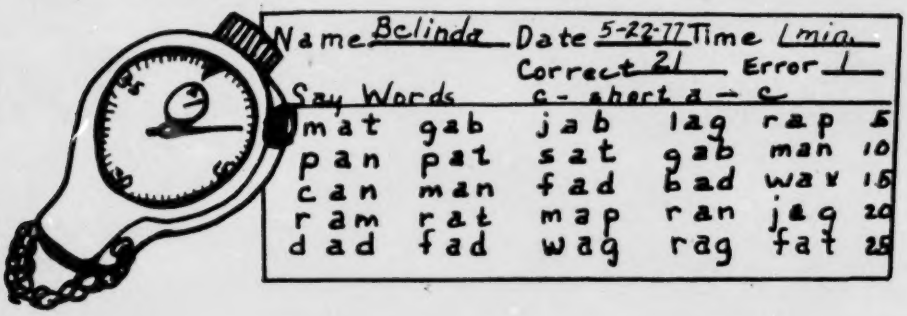


Pin-Point:

Specific objectives which is observable.



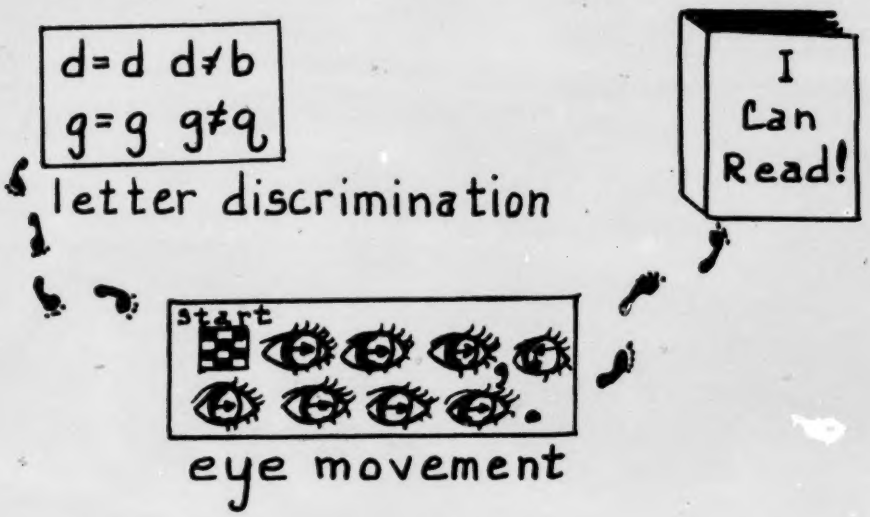
Time-Test:
A timed assessment of a student's learning objective. (See Appendix B)



Name Belinda Date 5-22-77 Time 1 min.
Correct 21 Error 1
Say Words c - short a - c

mat	gab	jab	lag	rap	5
pan	pat	sat	gab	man	10
can	man	fad	bad	wax	15
ram	rat	map	ran	jag	20
dad	fad	wag	rag	fat	25

Tool Movements:
The basic movement cycles required by a task.



ILLUSTRATIONS BY: Dorothy Frederick
Special Education
Precision Teacher

MICROWORKSHOP FEEDBACK SHEET

1. The purpose of our presentation was to provide those participating in the workshop with the skills, materials and the motivation to return to their own district and set up viable precision teaching projects of their own making. Did we do a good, fair or poor job in providing you with the essentials of precision teaching?

2. From your perspective, can you think of anything that was left out in the formal presentation that would probably make it easier for someone to understand and utilize the concepts of precision teaching?

3. Please circle the letter of that part of the presentation you found to be of most use to you. Also, please put an X through the letter of the item that you found to be of least usefulness.

   a. Verbal and slide descriptions of the school and the operation of the precision teaching project.

   b. Verbal explanation of various types of testings and tape recording of a pupil being tested in several areas.

   c. Peer pairings and testings for 1 minute.

   d. Working program workbook on the techniques of charting.

   e. Charting data from pairing activity on daily behavior charts.

   f. Mixed presentation on decision making.

   g. Explanation of materials included in packet.

   h. Panel responding to audience questions.

4. If you would like us to send you further information regarding precision teaching materials, as they become available, please indicate your name, position and mailing address.

_____ (Name) _____ (Position) _____ (Address)

_____ (State/Zip)

Microworkshop Feedback Sheet--Continued

5. Do you intend to implement any of the precision teaching ideas in your own school?

Yes Maybe Hope

Thank you, (please turn this sheet in at the exit on leaving)

CERTIFICATE of ACHIEVEMENT

IN PRECISION LEARNING

_____

(Student's Name)

Has mastered these skills:

PHONIC SKILLS

_____

_____

_____

_____

_____

ORAL READING AT 100 WPM

_____

(Book Name)

_____

(Book Name)

_____

(Book Name)

_____

(Book Name)

Teacher's Name _____

Consultant _____